

Eating Right during Pregnancy



THE LIBRARY OF I
FEB 6 1984
UNIVERSITY OF ILLINOIS
URBANA-CHAMPAIGN

CONTENTS

IMPORTANCE OF GOOD NUTRITION	3
YOUR WEIGHT GAIN	5
DAILY NUTRITION GUIDE	7
MILK GROUP	8
MEAT OR MEAT EQUIVALENT GROUP	9
BREAD AND CEREAL GROUP	10
FRUIT AND VEGETABLE GROUP	10
FATS AND OILS	11
SUGARS AND SWEETS	11
OTHER ASPECTS OF YOUR DIET	11
LIQUIDS	11
SALT	12
VITAMINS AND IRON	12
WATCH YOUR INTAKE OF THESE	18
TOBACCO	18
ALCOHOL	18
DRUGS	19
CAFFEINE	19
MENU PLANNING	20
VEGETARIAN DIETS	22
SPECIAL PROBLEMS	23
NAUSEA AND VOMITING	23
CONSTIPATION	26
HEARTBURN	26
HEMORRHOIDS	27
IRON DEFICIENCY ANEMIA	27
PICA	29
AN EXPRESSION OF YOUR LOVE	29

This circular was prepared by Mary McCann-Rugg, former Extension specialist in Foods and Nutrition, University of Illinois at Urbana-Champaign.

In preparing this circular, the author drew from many sources, ranging from professional medical journals to Extension publications from other states. For those interested in the sources for parts of this circular, a reference list is available from Home Economics Cooperative Extension, 528 Bevier Hall, University of Illinois at Urbana-Champaign, 905 S. Goodwin, Urbana, IL 61801.

IMPORTANCE OF GOOD NUTRITION

At birth, a baby is nutritionally nine months old. For nine months it has been absorbing vitamins, minerals, and other nutrients from its mother's body and using them to form its tissues, bones, and organs. As the person supplying those ingredients, you play a most important role. It is your eating habits during your nine months of pregnancy that will determine your baby's health at birth.

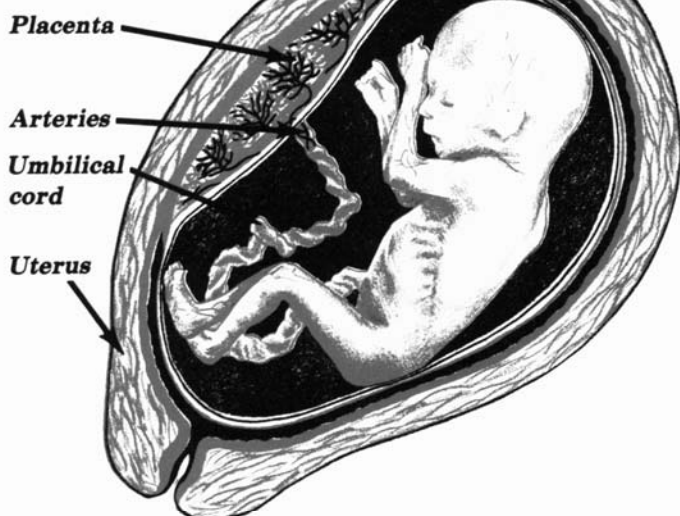
The importance of your eating habits becomes clear once you know how the food you eat reaches and affects your developing unborn child. As you eat, normal digestive processes occur so that the nutrients in the food are broken down and absorbed into your bloodstream. The nutrients are then circulated throughout your body where different body tissues and organs absorb them. When you are pregnant, one of those organs is your placenta.

The placenta is a spongy structure in your uterus, or womb (see figure on page 4). It is attached to the unborn baby (called a fetus at this stage) by the umbilical cord, which contains two arteries and one vein. Nutrients, oxygen, and antibodies will pass from your blood into the placenta and then to the fetus through the umbilical cord. Wastes from the fetus will also pass through the umbilical cord and placenta into your blood so your body can eliminate them.

The placenta is the only way your unborn child can receive the nutrients needed to develop properly. The placenta, in turn, is entirely dependent upon the nutrients you provide to it through your blood. If your blood has not received the proper nutrients, your unborn baby will be affected.

Even what you eat during very early pregnancy is important. To develop properly, the fetus needs to have all nutrients available all the time. As it grows and develops, different nutrients play special roles. For example, just seventeen days after conception, blood vessels and blood pools form, and adequate protein, iron, and vitamin C are essential at this time. During the third week — just twenty-one days after conception — the heart and brain begin to develop, and protein is needed. At the same time, the eyes begin forming, and vitamin A must be supplied. Protein, riboflavin, and niacin are needed during the fourth week for the formation of the ears and nose. By the eighth week, the skeleton is forming, and protein, calcium, vitamin D, and phosphorus must be supplied.

The Developing Fetus



If the mother's body does not supply the needed nutrients at the proper time and in the proper amounts, the fetus will not reach full growth in height, weight, and body development. Brain cells, for example, develop most rapidly in the last two months of pregnancy, both in number and in size. If the fetus doesn't receive the right nutrients during this time, the brain may not develop to its full size and maturity. The lack of proper development in the womb also could cause your child problems after birth. An underdeveloped infant has a lower chance of survival; it may have its growth stunted; it may learn less quickly.*

A poorly nourished mother also is more apt to have a premature baby because her body has not been properly fortified to stand the stress of pregnancy. A premature baby is a baby born before the end of nine months. It is more likely to have problems surviving and developing normally.

* The spurt of growth in the brain cells during the last two months of pregnancy continues for the first few months after birth. Proper nutrition is thus still vitally important after birth. For information on infant nutrition, see Extension Circular 1216, *Feeding Your Baby during the First Year*.

As you can see, it is vitally important for you to eat a wide range of nutrients in adequate amounts all during your pregnancy. Your unborn child is depending upon you!

Being a healthy mother is one of the best ways of insuring a healthy baby. To be a healthy mother, you should carefully follow your doctor's, nurse's, and dietitian's advice on nutrition, exercise, rest, and medication. A healthy mother who eats right is more likely to have a comfortable pregnancy, deliver a healthier baby, and be ready with a good supply of milk if she decides to breast feed. Pregnant teenagers must be especially careful to watch their diet because their own bodies are still growing and developing.

Ideally, the process of being a healthy mother should begin long before pregnancy. By entering pregnancy healthy, well nourished, and at a good body weight, you increase your chances of staying healthy during pregnancy and of having a healthy baby. If you have not followed the proper health and food habits before pregnancy, you obviously must be even more careful about following them while pregnant — both for your sake and your baby's sake.

YOUR WEIGHT GAIN

Not gaining enough weight during pregnancy can cause a woman to have a small baby, and a baby that weighs less than five pounds at birth is more likely to die in early infancy. Low-birth-weight babies (less than five pounds) also may suffer from growth retardation, both in head circumference and skeletal size. In addition, the internal organs, including the brain, of the low-birth-weight infant may be smaller and not as well developed as they should be. This underdevelopment could cause physical and mental problems.

Most physicians recommend a weight gain of about twenty-four pounds, with a good range being twenty to twenty-five pounds. First-time mothers, mothers carrying twins, or mothers who were underweight before pregnancy may safely gain more. Check with your doctor to see what your best weight gain will be.

Twenty-four pounds may seem like a lot to gain to have a six-to-nine-pound baby, but your unborn child accounts for only part of the weight you must gain. Your own body must add blood, muscle, fluids, and tissue to accommodate fetal development. For example, your blood volume will increase by about fifty percent by the end

of your pregnancy to help carry extra nutrients and oxygen to your unborn baby and to take away its wastes. Your increased weight should be distributed approximately as follows:

	Average gain (pounds)	Percent of total gain
Fetus	7½	31
Placenta	1½	6
Uterus	2	8
Increased blood and body fluids	8½	36
Body changes for breast feeding	4½	19
Total	<u>24</u>	<u>100</u>

Women who enter pregnancy overweight still need to gain weight during pregnancy if their baby is to be healthy. If you are an overweight expectant mother, remember that pregnancy is not the time to try to lose weight. Wait until after your pregnancy and nursing period to cut down on calories.

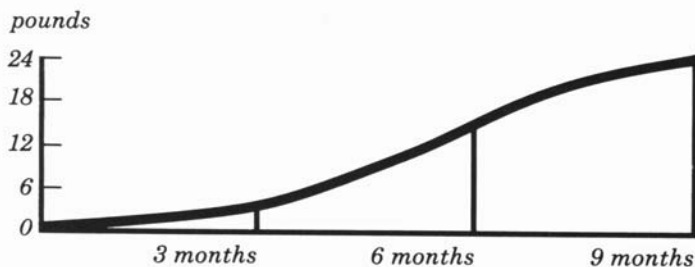
When and how fast you gain your weight is just as important as the amount you gain. Your weight gain should be smooth and steady throughout your pregnancy. During the first three months you should expect to gain a total of two to four pounds. During the last six months you need to gain about one pound each week. When charted, your weight gain should resemble the chart on the next page.

Remember that your weight should always increase steadily. A spurt in weight gain is a danger signal. **If your weight jumps suddenly, see your doctor.**

If you find that you have gained twenty-four pounds after six or seven months of pregnancy, continue to gain moderately until you deliver. Don't diet! Your unborn child needs to gain most of his or her weight during those last few months.

Always keep in mind that you are eating to nourish your unborn baby. You should not be eating simply to gain weight. Gaining twenty-four pounds will not necessarily insure a healthy baby unless

Weight Gain



Weight gain during pregnancy should be smooth and steady.

that weight comes from nutritious foods. The *quality* of weight gain is every bit as important as the quantity.

The Daily Nutrition Guide given in this circular will help you provide all the nutrients that you and your unborn child will need by making use of the following food groups: meat or meat equivalents, milk and milk products, breads and cereals, fruits and vegetables rich in vitamin C or folic acid, and other fruits and vegetables. Your weight gain should be adequate if you follow this guide. If you find that you are gaining too much weight, cut back on your sugars, sweets, fats, and oils, but *not* on the other foods in the guide.

What about returning to your normal weight after delivery? With proper eating and moderate exercise, you can safely return to your pre-pregnancy weight within three to six months. Breast feeding will help you take the pounds off faster. For information on breast feeding and its advantages for you and your baby, see Extension Circular 1217, *Breast Feeding Your Baby*.

DAILY NUTRITION GUIDE

A lot of folklore has always existed about what pregnant women should and should not eat. Two notions in particular have been believed by many people (including, in many years past, some physicians); maybe you have heard of them. One has been labeled the "parasite theory." This theory stated that an unborn baby would take whatever nutrients it needed from its mother's body, no matter what her diet was. The other has been labeled the "maternal instinct

theory." This theory held that a mother would instinctively crave and eat the foods that her unborn child needed. Both of these theories have been proven to be *wrong*. The fetus will *not* be able to take the nutrients it needs from your body if your diet is poor. Nor will you instinctively crave the food your unborn child needs. You may indeed have some food cravings, but they will *not* make up for inadequacies in your diet.

By now it should be evident that diet is extremely important during pregnancy and that what you eat or don't eat will directly affect your unborn child. You will be needing increased amounts of many nutrients, including calories, protein, calcium, folic acid, and iron. The key to good nutrition, therefore, will be variety. Selecting a wide range of foods is probably the best way to make sure that you will maintain your own health and provide needed nutrition to your growing unborn baby.

The Daily Nutrition Guide (page 13) has been designed to help you provide all the extra nutrients you and your unborn baby will need. The guide is supplemented by charts for each of the food groups (pages 13 to 17). These charts list a variety of foods that you can eat to fulfill the daily nutrition requirements and will tell you the amounts that you will need to eat to equal one serving. Although it is not necessary to measure foods exactly, keeping track of the serving sizes will help you know whether you have supplied enough different nutrients to your body and to your unborn baby.

MILK GROUP

The milk group provides calcium, phosphorus, and vitamin D to build bones and teeth; protein to aid the growth and repair of body cells; and zinc, magnesium, riboflavin, and other nutrients to help fetal growth and development. Calcium also helps nerves and muscles to react normally and aids the clotting of blood.

A serving of milk is one eight-ounce glass, and you will need to drink three to five servings each day to provide the calcium that both you and your unborn child will need.

If you are a teenager, you will need to drink an extra serving each day to provide for your growing body as well as your unborn

child's. It is important for teenage mothers to drink four or more servings daily during the first three months and five or more servings in the last six months.

If you are afraid you will have difficulty consuming that much milk, cheer up! Many foods can be substituted for a glass of milk. The foods in the Milk Group chart provide the same amount of calcium, phosphorus, and protein as one serving of milk. Remember, however, that some of these foods may have more calories than others. Thus, if you are gaining too much weight, you should perhaps choose those foods in this group that are lower in calories. Also, make sure that eating high-calorie foods from this group doesn't crowd out other important foods.

MEAT OR MEAT EQUIVALENT GROUP

The meat or meat equivalent group is rich in protein, B vitamins, and iron. Besides helping build and repair cells, muscles, and tissues, protein is involved in antibody formation to help you and your unborn child fight infections. Protein foods also usually contain iron, which is needed for the formation of red blood cells. These cells carry oxygen to all parts of your body and to your unborn baby.

Two or three ounces of meat is equal to one serving from this group, and you should eat three or more servings daily. Meat equivalents are foods that are not actually meat but ones that, if used properly, can provide the same protein and other nutrients as meat does. Some examples are eggs, cheese, nuts, beans, and seeds. Meat equivalents are certainly acceptable in your diet, but their protein will be of better nutritional value if it is combined with animal protein at the same meal. For example, a peanut butter sandwich will have better protein value if you drink a glass of milk with it.

It is possible to be a vegetarian and provide all the needed protein, but it is more difficult. See the section titled "Vegetarian Diets" for a more detailed discussion of vegetarianism and pregnancy.

The foods in the Meat or Meat Equivalent chart will provide the protein you need to fulfill the requirements of the Daily Nutrition Guide. Each item in the chart generally equals the nutrients in a two-ounce serving of meat.

BREAD AND CEREAL GROUP

Breads and cereals give you some of your extra calories and supply needed iron and B vitamins. Whole grain breads and cereals also provide fiber, a natural laxative. Check the labels on breads, cereals, and cereal products to make sure they are either made with whole grains or enriched with vitamins and minerals. The recommended number of servings is four or more daily. Each item in the chart equals the nutritional value of one serving of enriched bread or cereal.

FRUIT AND VEGETABLE GROUP

Because of the importance of obtaining certain nutrients every day, this group is subdivided into those fruits and vegetables high in vitamin C, those vegetables high in folic acid, and other fruits and vegetables. It is important to select foods from each of the three subgroups daily. By doing this, you will get the necessary vitamin C, folic acid, vitamin A, fiber, minerals, and other vitamins. You may use fresh, frozen, canned, or dried fruits and vegetables.

Some fruits and vegetables appear in more than one subgroup, for example, broccoli. If you eat broccoli, you will be receiving both vitamin C and folic acid in one vegetable; therefore, you do not need to select an extra vegetable from those subgroups for the day. You should, however, choose *three* more vegetables or fruits from the General Fruit and Vegetable Group so that you will eat a total of four fruits and vegetables for the day.

Vitamin C fruits and vegetables help you and your unborn child fight infections, keep your tissues strong, and form healthy bones, teeth, and gums. Vitamin C is not stored in the body so you must choose at least one food from the Vitamin C Fruit and Vegetable Group each day.

Folic acid vegetables are the leafy, dark green vegetables. They contain many nutrients necessary for growth and development, including folic acid and vitamin A. Folic acid helps develop blood cells, and vitamin A aids in the development of the fetal skeleton, eyes, skin, hair, teeth, gums, and glands. Like vitamin C, folic acid cannot be stored in the body. You thus need to choose at least one serving from the Folic Acid Vegetable Group every day.

Other fruits and vegetables contain many different vitamins and minerals that you and your unborn child need. They also contain fiber, which is a natural laxative, and many contain vitamin A. It is important to select foods high in vitamin A several times each week. (Because some vitamin A can be stored in the body, it is not necessary to provide a daily supply.) To get the best nutrition possible from the General Fruit and Vegetable Group, select a wide variety of these foods. In other words, sweet potatoes three times each day will not be as nutritionally valuable as one sweet potato, peas, and one banana would be. Choose foods in this subgroup to make sure that you get at least four servings a day. Thus, if you choose only one vegetable from each of the other two subgroups, choose at least two more from this subgroup.

FATS AND OILS

The fats and oils group includes bacon, lard, margarine, butter, salad dressing, mayonnaise, cooking oil, cream, and salt pork. Fats and oils provide calories for energy and give your food flavor. In fact, the foods in this group have more calories than the same amount of any food in all the other groups. Some fats and oils provide vitamins A, D, E, and K. Try not to overdo this group. A few tablespoonsful each day will be plenty.

SUGARS AND SWEETS

Sugars and sweets are high in calories and can provide you with energy. However, eating too much in this group may lessen your appetite for necessary foods and cause you to gain too much weight. Use this group as a treat once in a while. If you are physically active, you can have a little more from this group.

If you find you are gaining too much weight, cut back on fats, oils, sugars, and sweets. **Never cut down on the other food groups in the Daily Nutrition Guide to slow down weight gain.**

OTHER ASPECTS OF YOUR DIET

LIQUIDS

Water is important for blood circulation and kidney function, for waste elimination, and for body temperature regulation. Drink-

ing plenty of fluids also will help prevent constipation. Drink at least six 8-ounce glasses each day. Water, milk, cocoa, fruit juice, soups, and decaffeinated tea and coffee are all acceptable liquids. Coffee, tea, and some soft drinks contain caffeine, which may be harmful to your unborn baby (see page 19 for more information).

SALT

In the past, some doctors would prescribe a salt-free diet and water pills (or diuretics) when a pregnant woman seemed to be gaining too much weight. Recent research has shown this prescription to be unwise. Contrary to what you may have heard, salt has been found to be important for you and your unborn baby during pregnancy. It is necessary for maintaining certain normal body functions. However, because most people consume enough salt in their normal diet, you should not need to use any extra during pregnancy. Strive for a moderate intake. When you do use salt, be sure that it is iodized salt. Iodized salt contains iodine, which is very important for you and your unborn child.

If you have (or ever have had) high blood pressure, discuss the use of salt in your diet with your doctor.

VITAMINS AND IRON

If you are following the Daily Nutrition Guide, you will most likely not need multiple vitamin and mineral pills. However, it is impossible to get the amount of iron you will need during pregnancy from food alone. You will need an iron supplement while pregnant and possibly when breast feeding. You may also need a folacin supplement during pregnancy. Check with your doctor.

Your doctor may want you to take multiple vitamins and mineral supplements as well as iron and folacin supplements. If so, take *only* the amount prescribed. Too much of any vitamin, especially vitamins A and D, can be dangerous.

Always keep in mind that **vitamins and mineral pills cannot make up for a poor diet**. Pills do not supply protein, carbohydrates, fat, fiber, and some vitamins and minerals. You must get these from food. Follow the Daily Nutrition Guide and remember that prenatal vitamin pills are only added insurance to your good diet. They should never take the place of it.

Daily Nutrition Guide

Food group	Servings needed per day
Milk, 1st trimester (adult)	3 or more
1st trimester (teenager)	4 or more
2nd and 3rd trimesters (adult)	4 or more
2nd and 3rd trimesters (teenager)	5 or more
Meat or meat equivalent	3 or more
Breads and cereals	4 or more
Fruits and vegetables	4 or more total
Rich in vitamin C	1 to 2
Rich in folic acid	1 to 2
General	1 to 2
Fats and oils	1 to 2 tablespoons as needed for calories
Sugars and sweets	As needed for calories

Milk Group

Milk — 1 cup of any of the following.

buttermilk	skim milk
evaporated milk	2 % milk
goat's milk	whole milk
reconstituted nonfat dry	

Cheese

cheddar-type cheese	1 ½ ounces (45 grams)
cheese spread	4 tablespoons
cottage cheese	2 cups
cream cheese	1 ½ ounces (45 grams)

Other

chocolate milk		milkshake	1 cup
(not drink)	1 ¼ cups	pudding	1 cup
custard	1 cup	soups made with milk	1 ½ cups
ice cream	1 ½ cups	yogurt	1 cup

Meat or Meat Equivalent Group

Meats — 2 ounces of any of the following will equal one serving of your daily meat group requirement. Meat weights are the weight after cooking, and the nutritional value will obviously be better if the meat is lean. Where alternative measurements are more appropriate or easier, they are given.

beef	fish and shellfish (cont.)
fish and shellfish	shrimp (10 medium)
crab (½ cup)	tuna (½ cup)
clams (10 medium)	game (rabbit, squirrel, etc.)
filet	hot dogs (2)
fishsticks (3 sticks)	lamb
lobster (½ cup)	luncheon meats/cold cuts (2 slices, 4 ½ by ½ inch)
mackerel (½ cup)	pork
oysters (10 medium)	poultry
salmon (½ cup)	spare ribs (6 medium)
sardines, drained (6)	veal
scallops (10 medium)	

Bread and Cereal Group

bagel, small	½	cereal (cont.)	
barley, cooked	½ cup	puffed (e.g., puffed wheat)	1 cup
biscuit, 2" diameter	1	ready-to-eat (e.g., corn flakes)	¾ cup
bread, enriched or whole grained	1 slice	corn bread, 2" × 2" × 1"	1
cereal		crackers	
bran	½ cup	butter type, round	5
cooked (e.g., oat- meal)	½ cup	graham, 2 ½" square	2
grits, cooked	½ cup		

Meat equivalents — Remember to count cheese as a serving of milk or meat, but never as both.

any canned, nonsnap bean — e.g., lima (1 cup)	dried peas and beans, cooked (1 cup)
cheese	eggs (2 medium)
cheddar type (2 ounces)	nuts (½ cup)
cottage cheese (½ cup)	peanut butter (¼ cup or 4 tablespoons)
other types* (6 table- spoons)	sunflower seeds (½ cup)

* Includes mozzarella, ricotta, farmer's, Neufchâtel, and Parmesan.

crackers (cont.)		muffin (cont.)	
oyster	20	English, small	½
pretzels, 3 ⅛" × ⅛" diameter	25	plain, small	1
rye wafers, 2" × 3 ½"	3	pancakes, 5" × ½"	1
soda, 2 ½" squares	4	pasta, any cooked	½ cup
dinner roll	1	popcorn	3 cups
hamburger/hot dog bun	½	rice, cooked	½ cup
muffin		tortilla, 6"	1
corn, 2" diameter	1	waffle, 5" × ½"	1
		wheat germ	¼ cup

Fruit and Vegetable Group

Vitamin C Group

Vegetables

asparagus	1/2 cup	peppers, any	1/2 medium or 1/2 cup
broccoli	1/2 cup (1 stalk)	potato	1 small
brussels sprouts	1/2 cup (3 or 4)	tomato	2 medium or 1/2 cup
cabbage	1/2 cup	tomato juice	1/2 cup
cauliflower	1/2 cup	turnip	1 medium or 1/2 cup
chili peppers, any	1/4 cup (2 or 3)	vegetable juice	1/2 cup
greens — collard, kale, mustard, spinach, turnip	1/2 cup		

Fruits

cantaloupe	1/4 small	orange	1 medium
honeydew	1/8 medium	orange juice	1/2 cup
grapefruit	1/2	raspberries	1/2 cup
grapefruit juice	1/2 cup	strawberries	3/4 cup
mango	1/2 small	tangerine	1 medium

Folic Acid Vegetable Group

One-half cup of any of the following equals one serving from this group.

asparagus	greens, any
broccoli	lettuce, any leafy
brussels sprouts	okra
cabbage	spinach

General Group

Vegetables

beans (green or yellow, wax)	1/2 cup	onions	1/2 cup
bean sprouts	1/2 cup	parsnip	1/2 cup
beets	1/2 cup	peas	1/2 cup
carrots*	1/2 cup (2 small)	radishes	1/2 cup (6 small)
celery	1/2 cup (1 stalk)	rhubarb	1/2 cup
corn	1/2 cup (1/2 ear)	sauekraut	1/2 cup
cucumber	1/2 cup (1/2 medium)	squash, summer	1/2 cup
eggplant	1/2 cup	squash, winter*	1/2 cup
hominy	1/2 cup	sweet potato*	1 medium
mushrooms	1/2 cup	yam*	1 medium
		zucchini	1/2 cup

Fruits

apple	1 small	figs, fresh	1
apple juice	1/2 cup	grapes	1/2 cup or 12
applesauce	1/2 cup	grape juice	1/4 cup
apricots, dried*	4 halves	pear	1 small
apricots, fresh*	2 medium	peach*	1 medium
banana	1/2 small	pineapple	1/2 cup
blackberries	1/2 cup	pineapple juice	1/2 cup
blueberries	1/2 cup	plums	2 medium
cantaloupe*	1/4 small	prunes	2 medium
cherries	10 large	prune juice	1/2 cup
cider	1/2 cup	raisins	2 tablespoons
dates	2	cranberries	1/2 cup
figs, dried	1	watermelon	1 cup

* Indicates foods that are especially high in vitamin A and that should be selected several times each week.

WATCH YOUR INTAKE OF THESE

TOBACCO

Smoking is harmful to the unborn child. Tar, nicotine, and carbon monoxide affect fetal development in several ways. For example, smoking may cause your blood vessels to narrow, thereby restricting your circulation. The resulting reduced blood flow will deprive the fetus of adequate nutrients and oxygen, and the lack of adequate nutrients and oxygen can retard fetal growth so that the baby is born with a low birth weight, which reduces its chances for survival. In addition, your appetite may decrease if you smoke, causing you to eat too little and not gain enough weight. Insufficient weight gain also causes low-birth-weight infants.

The effect of smoking on your unborn child is almost immediate. For example, an unborn baby practices some breathing motions — preparing for life outside the womb — by exercising certain chest muscles. These practice movements slow down noticeably after a mother smokes just two cigarettes.

Don't fool yourself. Your smoking is harmful to your unborn child. It has been proven again and again that smoking mothers have more stillbirths, low-birth-weight babies, and infants that die soon after birth. Don't smoke at all, if possible. If you absolutely cannot stop, reduce your smoking as much as possible. Smoking more than twenty cigarettes per day is considered heavy; try to reduce to less than one-half pack per day. Smoke only one half of your cigarette. The amount of tar and nicotine you inhale increases as your cigarette gets shorter.

ALCOHOL

Your placenta is no barrier to alcohol. Your unborn baby feels a drink almost as fast as you do. In fact, what is a small amount to you may have a direct toxic effect on the fetus's tiny body. No amount is actually safe; even an occasional cocktail or glass of wine will affect your baby.

Pregnant women who continually consume more than two ounces of hard liquor in 24 hours are in grave danger of having a baby born with fetal alcohol syndrome. Fetal alcohol syndrome is associ-

ated with retarded fetal growth and development (including mental retardation) and such malformations as heart abnormalities and cleft palates.

Don't drink at all, if possible. If you absolutely must drink, don't drink more than two ounces of hard liquor (or two beers) in a 24-hour period.

DRUGS

As with alcohol and tobacco, don't use *any* drugs except those prescribed by your physician. The placenta will *not* act as a protective barrier to keep harmful drugs from reaching your unborn child. Most birth defects are caused during the first twelve weeks of pregnancy, when the body, arms, legs, and internal organs are forming. The wrong drug taken at this time could interrupt or drastically change part of the fetal development. Drugs may have a harmful impact on the unborn baby even in late pregnancy. For example, something as seemingly harmless and mild as an aspirin can disrupt the fetus's blood-clotting mechanisms.

CAFFEINE

Caffeine is a stimulant that occurs naturally in coffee beans, tea leaves, kola nuts, and cocoa beans. Until recently, medications and other drugs were vigorously discouraged for the pregnant woman, but no one thought or worried too much about caffeine. Some evidence now suggests that pregnant women who consume caffeine *may* be taking a risk. Caffeine readily passes through the placenta to your baby and some studies show that consuming large amounts of caffeine may increase the chance of birth defects in your baby.

The list on page 20 shows the relative amounts of caffeine in different beverages. To be on the safe side, you may wish to avoid all caffeinated coffee, tea, cola, and cocoa beverages while you are pregnant, or at least decrease your consumption to only a couple cups a day. Decaffeinated coffee, herbal teas, decaffeinated colas, and noncola carbonated beverages such as root beer and fruit-flavored drinks contain little or no caffeine and can be used in place of caffeinated beverages.

Beverages	Amount of caffeine (in milligrams)
Brewed coffee	85 per cup
Instant coffee	60 per cup
Brewed black tea	50 per cup
Brewed green tea	30 per cup
Instant tea	30 per cup
Decaffeinated coffee	3 per cup
Cola drinks	32-65 per 12 ounces
Cocoa	6-142 per cup

MENU PLANNING

If you have been eating a nutritious diet before your pregnancy, you shouldn't have to change much of your menu planning. Many women like to eat the same foods and amounts during their meals as they did before pregnancy and to use snacks to provide the extra foods they need while pregnant.

Snacking can be a great way to supplement your diet since it is difficult to get everything you need in just three meals. Nutritious foods such as fruits, vegetables, cheese, milk, ice cream, yogurt, and peanuts are ideal snacks for the pregnant woman. Sample menus are given on page 21 to show you how you can balance your meals and snacks to fit your Daily Nutrition Guide.

One very important thing — **Don't skip meals!** Many women are accustomed to skipping a meal, especially breakfast. Don't! You must get in the habit of eating something in the morning, even if it is only a boiled egg or a piece of toast and juice. If necessary, munch on leftovers, a piece of fruit, or some peanut butter, or drink a glass of milk. If you really are having a difficult time eating when you first get up, keep it light and have a substantial midmorning snack.

You may even find that you are better off just snacking all day long (on nutritious foods) instead of trying to plan actual meals. Arrange your daily menus in whatever way is best for you, but be sure to include all the food groups in the Daily Nutrition Guide.

	First day	Second day	Third day
Breakfast	2 eggs scrambled 1 piece whole wheat toast ½ cup orange juice 1 cup milk	1 cup raisin bran 1 cup milk ½ cup tomato juice	2 large pancakes with syrup and butter ½ cup grapefruit juice
Midmorning snack	1 banana	½ ounce cheese 6 whole wheat crackers	¼ small cantaloupe
Lunch	peanut butter and jelly sandwich 1 orange 2 oatmeal cookies 1 cup milk	chef's salad with egg, 1 oz. ham, 1 oz. swiss cheese, tomato, lettuce, carrots, and salad dressing 1 cup milk	1 cup chicken vegetable soup 2 cups cottage cheese with peaches 2 hard boiled eggs 1 cup milk
Midafternoon snack	whole wheat crackers	1 ½ cups ice cream	1 cup yogurt
Dinner	beef stew (3 oz. meat, 1 cup folic acid vegetables) 1 piece of cornbread with margarine 1 cup milk ¾ cup strawberries	2 pork chops (3 ounces) ½ cup broccoli baked potato with margarine 1 cup milk canned fruit 1 muffin with margarine	chicken livers (3 ounces) 1 cup rice ½ cup brussels sprouts margarine 1 cup milk
Late snack	1 cup vanilla pudding	small piece of cake	1 cup hot cocoa

* For ethnic, low salt, and other special diets, consult with your doctor, local nutritionist, county Extension home economics adviser, or other public health official.

VEGETARIAN DIETS

If you want to follow a vegetarian diet during your pregnancy, you can do so, but you will need to select your foods with special care. A vegetarian diet that includes milk, eggs, cheese, cereals, legumes, and nuts is called a lacto-ovo vegetarian diet and can be adequate for a pregnant woman. A vegetarian diet that contains no milk, eggs, cheese, or other animal products, however, may not provide all the nutrients needed during pregnancy.

It is important to understand why special caution is needed when following a vegetarian diet. Protein is composed of amino acids that are linked together. There are certain amino acids (called essential amino acids) that your body cannot make by itself and needs to obtain through the foods you eat. Animal foods such as eggs, milk, and meat contain all of these essential amino acids in a sufficient amount to supply your needs.

Although plant foods such as beans and rice contain protein, the quality of the protein is not as good as that of animal protein. In other words, plant foods do not contain all the essential amino acids in sufficient quantities to supply your body's needs. By carefully selecting and mixing the right plant foods, however, you can obtain all the essential amino acids in sufficient amounts. The hitch is that you must consume these different plant foods at the same meal so the essential amino acids can "complement" each other. A *variety* of plant foods is thus very important in a vegetarian diet.

The following are general guidelines to insure that your vegetarian diet will meet all your nutritional needs. Using a reputable vegetarian cookbook should also be helpful in planning nutritious, balanced vegetarian meals.

- ☐ Except for animal protein, follow the Daily Nutrition Guide.
- ☐ Eat a wide variety of foods including milk, milk products, and eggs.
- ☐ If milk products are not used, you will need a vitamin B₁₂ supplement daily. If goat and soy milk are used, you may still need partial supplementation. Ask your doctor to provide supplements for you. (Some soy milk is fortified; check the labels.)

- ☐ If no milk products are used, you also will need a calcium and vitamin D supplement. If you consume less than four servings of milk or milk products, you will need partial supplementation. Again, ask your physician for supplements.
- ☐ When you use salt, make sure it is iodized.
- ☐ To replace the animal protein you will be excluding from your diet, select a wide variety of plant foods (especially grains, legumes, nuts, and seeds). The list on the following page shows which foods must be combined together to provide the proteins you need.

SPECIAL PROBLEMS

Many women breeze through their pregnancies with vigorous health and broad smiles and insist that they have never felt better in their lives. Others don't seem to manage quite that well. Unpleasant side effects such as nausea, vomiting, constipation, and heartburn may make some pregnancies less than enjoyable. Fortunately, there are ways to control some of these uncomfortable conditions. If you find that you never need to use the information on the following pages, you are a fortunate woman. For anyone who wants a little help over the rough spots, however, this section is for you.

NAUSEA AND VOMITING

Nausea or vomiting, sometimes called morning sickness, usually occurs during the early months of pregnancy. Nausea usually disappears after the third month, although it can last longer and occasionally the entire pregnancy. Nausea most commonly occurs during the morning, hence the name, but it can happen at any time of the day or night.

Morning sickness occurs because of the changes your hormones are causing in your body. These hormonal changes cause your whole digestive system to slow down. Your stomach empties more slowly and produces less of the acids and enzymes used to break food down. Food sits in your stomach for much longer periods of time than before. Your intestines are more sluggish, and your gallbladder, which plays an important part in your digestion, works at a slower rate.

Complementary Plant Protein Combinations

Food group	Complementary protein combinations		
Grains	Rice and legumes* Corn and legumes* Wheat and legumes* Wheat and peanuts and milk Wheat and sesame seeds and soybeans Rice and brewer's yeast		
Legumes*	Legumes and rice Beans† and wheat Beans† and corn Soybeans and rice and wheat Soybeans and corn and milk Soybeans and wheat and sesame seeds Soybeans and peanuts and sesame seeds Soybeans and peanuts and wheat and rice Soybeans and sesame seeds and wheat		
Nuts and Seeds‡	Peanuts and sesame seeds and soybeans Sesame seeds and beans† Sesame seeds and soybeans and wheat Peanuts and sunflower seeds		
Vegetables	<table border="0"> <tr> <td> Lima beans Green beans Brussels sprouts Cauliflower Broccoli </td><td> } any one of these plus sesame seeds or Brazil nuts or mushrooms </td></tr> </table>	Lima beans Green beans Brussels sprouts Cauliflower Broccoli	} any one of these plus sesame seeds or Brazil nuts or mushrooms
Lima beans Green beans Brussels sprouts Cauliflower Broccoli	} any one of these plus sesame seeds or Brazil nuts or mushrooms		

* Among the many types of legumes are beans, split peas, black-eyed peas, chick peas, and lentils.

† Among the many types of beans are navy, red, kidney, pinto, great northern, lima, garbanzo, and black beans.

‡ Among the many types of seeds and nuts are Brazil nuts, almonds, pine nuts, walnuts, cashews, pecans, peanuts, sesame seeds, and pumpkin seeds.

(Your gallbladder also helps you digest and absorb fats; thus, when you're pregnant, fatty or fried foods may become harder to digest.) All this slowing down of the digestive system contributes to a queasy feeling and a hard-to-manage stomach.

Obviously, food will not be too appealing when you feel queasy. However, even when you don't care about eating foods because of morning sickness, remember that it is important to eat properly for your unborn child's sake. To help you through these times, try the following:

- ☐ Before you get out of bed in the morning, eat a few crackers, a handful of dry cereal, or a piece of toast or dry bread. Put these within reach of your bed the night before.
- ☐ Get up slowly in the morning. Take several minutes. Avoid sudden movements.
- ☐ Eat five or six small meals a day. Never go for long periods of time without food. Don't let your stomach get completely empty.
- ☐ Drink fluids, including soups, between meals instead of with meals.
- ☐ When you feel nauseated between meals, drink small amounts of apple juice, grape juice, or carbonated beverages.
- ☐ Avoid greasy and fried foods. These include butter, margarine, mayonnaise, bacon, gravy, pie crust, pastries, and french fries.
- ☐ Eat lightly seasoned foods. Avoid foods cooked with pepper, chili, and garlic.
- ☐ When you cook, open windows or use the exhaust fan to get rid of odors.
- ☐ Be sure to have plenty of fresh air in the room when you sleep. Stale, musty odors may upset your stomach.
- ☐ Do not take *any* medications for nausea or vomiting unless prescribed by a physician.
- ☐ If you smoke, stop.
- ☐ Notify your physician immediately if you are losing weight because of nausea and vomiting, or if you are unable to retain *any* fluids or solids for over 12 hours.

CONSTIPATION

Certain changes that take place in your body during pregnancy may make you constipated. Your intestinal tract is moving more slowly, and the muscles are more relaxed. In addition, pressure from your growing uterus pushes on your lower intestine, hindering its work even further. Not enough exercise and not enough fiber and liquids in your diet also may add to this problem.

A diet based on the Daily Nutrition Guide should contain enough fluids and bulk to aid in elimination. If you are still constipated, the following may help:

- ☐ Eat more raw fruits and vegetables, including skins. Also, try dried fruits, stewed prunes and apricots, and prune juice.
- ☐ Use whole grain cereals and breads (not refined, milled, or processed) such as oatmeal, whole wheat bread, and brown rice. Have a bran muffin.
- ☐ Drink more liquids. Include water, milk, cocoa, fruit juices, and soups. Sherbet is a good source of fluids too. A glass of warm water as soon as you get up may help.
- ☐ Add a small amount of bran or wheat germ to cereals or other foods.
- ☐ Eat meals at regular times.
- ☐ Exercise regularly.

If constipation continues, talk to your doctor. Do *not* take any over-the-counter drugs or home medications such as mineral oil. Mineral oil is not digested by the body but goes through your intestinal tract intact. If it is present in the intestines at the same time as some vitamins, such as vitamin A, it absorbs them and carries them out of your body.

HEARTBURN

Heartburn is sometimes a problem during the last months of pregnancy. As your unborn child grows, there is increased pressure on your stomach. The opening or sphincter between your stomach and your esophagus is more relaxed at this stage, and this relaxation may occasionally allow some of the contents of your stomach to reach your lower esophagus more easily. A "burning" feeling results.

This feeling is called heartburn because the pain seems to come from an area near the heart although it actually has nothing to do with the heart itself.

If you have heartburn, try the following:

- ☐ Eat five or six small meals a day instead of two or three larger ones.
- ☐ Limit fatty and fried foods like butter, margarine, mayonnaise, bacon, gravy, pie crust, pastries, fried meats, and french fries.
- ☐ Avoid spicy foods such as those made with pepper, chili, and garlic.
- ☐ Wear clothes that are loose around your waist.
- ☐ Try to relax and eat slowly; chew your food well and avoid tension during meals.
- ☐ After eating, remain in an upright position (sitting or standing) for at least 20 minutes.

Over-the-counter drugs may be harmful to your unborn child. *Never* take medication (even home remedies) without talking to your doctor.

HEMORRHOIDS

Hemorrhoids are a fairly common problem during the later part of pregnancy. Hemorrhoids are enlarged veins in the anus. The enlargement is usually caused by the increased weight of the unborn baby and the downward pressure it exerts. Hemorrhoids are quite uncomfortable, causing burning and itching. Occasionally they may rupture and bleed under the pressure of a bowel movement during constipation.

Hemorrhoids can be helped by observing the same recommendations as for constipation. Getting plenty of rest during the day and thus taking the weight of your unborn baby off the lower intestines will also help. If hemorrhoids are a persistent problem, contact your physician for advice.

IRON DEFICIENCY ANEMIA

Iron deficiency anemia develops when there is not enough iron in the body for normal red blood cell formation. Red blood cells con-

tain hemoglobin, which has iron in it. Hemoglobin has the ability to pick up oxygen and carry it throughout the body. Because oxygen is needed by every cell in the body, it is important to have plenty of hemoglobin and red blood cells available.

If you are anemic, you have less hemoglobin and fewer red blood cells than you need. One symptom of anemia is that you feel constantly fatigued no matter how much sleep you get. A pregnant woman who is following the Daily Nutrition Guide and taking the iron supplements her physician prescribes will have little trouble with iron deficiency anemia.

Your physician will probably check your hemoglobin levels throughout your pregnancy and will be able to alert you to any problems with anemia that may arise. If you develop this problem, pay special attention to your diet and be sure to include plenty of the foods listed below, which are high in iron. Also, try taking your iron

Foods High in Iron

Meats

beef, lean	eggs	kidney	pork, lean
calf liver	fish	lamb liver	pork liver
chicken	ham	liver sausage	sardines
clams	heart	oysters	veal, lean

Vegetables

beet greens	peas
collard greens	potatoes with
endive	skins
green peppers	spinach
kale	turnips
greens, any	

Fruits

apricots, dried	prune juice
banana	prunes
dates	raisins
figs, dried	strawberries
peaches, dried	watermelon

Meat equivalents

cashews	red kidney
lentils	beans
lima beans	soybeans
peanut butter	split peas
peanuts	walnuts
pinto beans	white beans

Cereals — There are many examples of high-iron cereals. Read the labels to make sure the ones you buy contain at least 25 percent of the iron you need daily.

supplement with a high vitamin C food such as orange juice. If vitamin C is present in the intestines at the same time as the iron, it will cause increased iron absorption from plant foods.

PICA

Pica is a condition some pregnant women will develop. It is the tendency to eat inedible things like clay, dirt, or laundry starch. Pica causes you to crowd out other needed foods. If you develop pica, don't panic. Talk to your doctor. He or she can help you overcome this condition.

AN EXPRESSION OF YOUR LOVE

Despite the discomforts that may arise, pregnancy is an exciting, special time, and sound nutrition will help make it so. Moreover, eating right is the earliest way you can express your love for your child. Therefore, eat wisely and not only feel better yourself but also say "I love you" to your unborn child.

Urbana, Illinois

September, 1983

Issued in furtherance of Cooperative Extension Work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. WILLIAM R. OSCHWALD, Director, Cooperative Extension Service, University of Illinois at Urbana-Champaign. The Illinois Cooperative Extension Service provides equal opportunities in programs and employment.

8M—9-83—56112—CC